HEALTH LEVEL SEVEN (HL7) UPGRADE

TECHNICAL RELEASE NOTES AND INSTALLATION GUIDE

Patch IVM*2*34

May 2002

Department of Veterans Affairs
System Design & Development

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Technical Release Notes

Overview

Health Level Seven (HL7) is a standard protocol that specifies the implementation of interfaces that exchange healthcare information electronically. The **V*IST*A** HL7 package assists M-based applications to conduct these HL7 transactions by providing the facilities to create, transmit, and receive HL7 messages over a variety of transport layers. The Health Eligibility Center's (HEC) and Veterans Administration Medical Center's (VAMC) current implementation of the **V*IST*A** HL7 package is Version 1.5, which was the first released version of **V*IST*A** HL7, and uses VA MailMan as the communications protocol. Version 2.1 of the HL7 industry standard format is currently in use with the **V*IST*A** HL7 package at the HEC and VAMCs.

In 1993, the Infrastructure Team released **V*IST*A** HL7 V. 1.6 and recommended that all sites upgrade to this version. **V*IST*A** HL7 V. 1.6 is compatible with V. 2.1 of the HL7 industry standard format; therefore, an upgrade to V. 2.3.1 of the HL7 industry standard format is not a requirement of this project. Lately, the package upgrade has become more important to the HEC, because the upgrade is necessary to implement the Institution File Redesign and HEC Redesign projects. In order to receive the INSTITUTION File (#4) updates, the HL7 package must contain Patch HL*1.6*57, which is a complete overhaul of the **V*IST*A** HL7 package and enhances the package's TCP/IP capabilities.

Purpose of This Manual

The purpose of this manual is to provide technical information about the upgrade to **V*IST*A** HL7 V. 1.6 and to provide installation instructions for **V*IST*A** Patch IVM*2*34.

Software and Documentation Retrieval

Software Retrieval

The software for this patch is not being distributed through the National Patch Module. This patch is being distributed as a host file.

Host file name: **IVM_20_P34.KID**

The host file will contain the following two KIDS builds:

- IVM*2.0*34
- DG*5.3*363

Sites may retrieve the software directly using FTP (in ASCII transfer mode) from the ANONYMOUS.SOFTWARE directory at the following OI Field Offices:

Location	Address
Albany	ftp.fo-albany.med.va.gov
Hines	ftp.fo-hines.med.va.gov
Salt Lake City	ftp.fo-slc.med.va.gov

Documentation Retrieval

The following documentation files are being released with this patch in pdf format. You can ftp them as binary files from the ANONYMOUS.SOFTWARE directory at the OI Field Office addresses shown in the Software Retrieval section above.

File Name	Description
DG_5_3_P363_RN.PDF	Patch DG*5.3*363 Technical Release Notes
IVM_2_P34_RN_IG.PDF	Patch IVM*2*34 Technical Release n Notes and Installation Guide
IVM_2_P34_TM.PDF	Revised IVM V. 2.0 Technical Manual (Please note: This file will also be available for download in .doc and .pdf versions from the online **V***ISTA***A** Documentation Library (VDL) at http://vista.med.va.gov/vdl/#App44)

New Routines

IVM16PM
This routine provides manual functionality for fixing the following:

1. The same Enrollment/Eligibility Query is being added to the Transmission queue. This routine will complete all Enrollment/Eligibility Queries so that they are removed from the transmission queue. This allows the site to begin transmitting the pertinent transmissions, without retransmitting the same query.
2. The Enrollment Query Log entries were getting filed with a date of 1. The entries in the log will be re-filed by the current date.

IVMPRECZ
This routine will process the V. 1.5 incoming ORF~Z06 from the HEC, even though the site may have been upgraded to V. 1.6. (The previous routine to process ORF~Z06s was IVMPREC7. As that routine, and routines that it calls, were upgraded to V. 1.6, there needed to be a new path to process the V. 1.5 ORF~Z06.)

Routine Changes

The modifications to the routines listed in this section will update the HL7 interface at the VAMCs to use the new functionality provided by V. 1.6 of the **V***IST***A** HL7 application.

Direct Access of Message Data into Files #772 and/or #773

Routines affected:
IVMCMC
IVMCM
IVMPREC
IVMPREC1
IVMPREC2
IVMPREC3
IVMPREC4
IVMPREC5
IVMPREC6
IVMPREC7
IVMPRECA

V*IST***A** HL7 V. 1.6 separates the header of the transmission, and the message of the transmission. The header is placed in File #773, and the message in File #772. Previously, the full transmission was placed in File #772. HLNEXT (a call to HLNEXT^HLCSUTL) was created to gather the full transmission without having to manually traverse the many pointers to all the necessary data. There is a standard procedure (listed in the **V***IST***A** HL7 Site Managers & Developers Manual) to read all incoming segments of a message, using HLNEXT. The data is stored in the following temporary file:

^TMP($J,IVMRTN,SEGCNT,CNT)
{Where: IVMRTN = Main Routine which gathers the incoming message
And: SEGCNT = Incremental Segment Counter CNT = Incremental Continuation Counter Starts at 0}

Only the temporary file should be used by routines to use segment/message data. Segment/message access should NOT be made directly into File #772 and/or File #773.

Initialization of HL7 Variables

Routines affected:
IVMCM
IVMCQ1
IVMLINS2
IVMPREC
IVMPTRN
IVMPTRN3
IVMPTRN5
IVMPTRN7
IVMUFNC
IVMUFNC4

The new **V*IST*A** HL7 Messaging V. 1.6 uses the following call:

DO INIT^HLFNC2(HLEID,.HL)

{Where: HLEID = Name or IEN from file #101 of the Event Driver Protocol.
And: HL = HL7 variables returned in the HL array}

Note that commonly used variables such as HLQ, HLFS, and HLECH are also created by this call in order for V. 1.5 backward compatibility. This is done so that the variables can be set up more specifically for each interface. The Event Driver Protocol will contain information or pointers to information that will describe the who, what and where of the interface.

Sending the Transmission

Routines affected:
IVMCM
IVMCQ1
IVMLINS2
IVMPREC
IVMPREC2
IVMPTRN3

To Transmit Acknowledgement (ACK) Messages

GENACK^HLMA1(HLEID,HLMTIENS,HLEIDS,HLARYTYP,HLFORMAT,.HLRESLTA,
HLMTIENA,.HLP)
{Where: HLEID = Name or IEN of Event Driver Protocol
And: HLMTIENS = IEN of entry in HL7 MESSAGE TEXT File (#772) for subscriber application
HLEIDS = IEN of subscriber event from the PROTOCOL File (#101)
HLARYTYP = Array type. One of the following codes:

- LM = local array containing a single message
- LB = local array containing a batch of messages
- GM = global array containing a single message
- GB = global array containing a batch of messages

HLFORMAT = Format of array, 1 for pre-formatted in HL7 format, otherwise 0
HLRESLTA = The variable that will be returned to the calling application as described above [PASSED BY REFERENCE]
HLMTIENA = IEN of entry in HL7 MESSAGE TEXT File (#772) where the acknowledgement message will be stored. This parameter is only passed for a batch acknowledgment.
HLP("SECURITY") = A 1 to 40 character string}

To Transmit Generic Non-ACK Messages

GENERATE^HLMA(HLEID,HLARYTYP,HLFORMAT,HLRESLT,HLMTIEN,HLP)
{Where: HLEID = Name or IEN of Event Driver Protocol
And: HLARYTYP = Array type. One of the following codes:

- LM = local array containing a single message
- LB = local array containing a batch of messages
- GM = global array containing a single message
- GB = global array containing a batch of messages

HLFORMAT = Format of array, 1 for pre-formatted in HL7 format, otherwise 0
HLRESLT = The variable that will be returned to the calling application as described above [PASSED BY REFERENCE]
HLMTIEN = IEN of entry in HL7 MESSAGE TEXT File (#772) where the message being generated is to be stored. This parameter is only passed for a batch type message
HLP("SECURITY") = A 1 to 40 character string
HLP("CONTPTR") = Continuation pointer, a 1 to 180 character string}

Storage of Message Before Transmission

Routines affected:
IVMCQ1
IVMLINS2
IVMPREC
IVMPTRN3
IVMPTRN5
IVMPTRN8
IVMPTRN9
IVMUFNC
IVMUFNC4

In **V***IST***A** HL7 V. 1.6, the local variable array HLA("HLS",CTR) {Where: CTR = Counter for segments in the message} is used to hold small outgoing transmissions. Large outgoing transmissions are held in the following file:

^TMP("HLS",$J,CTR)
{Where: $J = unique job identifier created by M
And: CTR = Counter for segments in the message}

Message Headers (MSH and BHS)

Routines affected:
IVMCM
IVMCQ1
IVMLINS2
IVMPREC
IVMPREC2
IVMPTRN3
IVMPTRN5
IVMPTRN7
IVMPTRN
IVMUFNC4

In **V*IST*A** HL7 V. 1.6, the HL7 Messaging system routines create the header segment after the application routines have created the message body. In this way, the application routines only create the body of the message.

Outgoing Single Message (MSH)

In **V*IST*A** HL7 V. 1.6, the application routine will create the outgoing data array or global as described in Step D. When the data is passed to the transmission generation routine (GENACK^HLMA1 or GENERATE^HLMA) the MSH header will be created by HL7 Messaging.

Outgoing Batch Message (BHS)

In **V*IST*A** HL7 V. 1.6, the individual messages (MSH) within the batch are still controlled by the application routine, but the batch header (BHS) is created at the time of transmission by the message transmission routine (GENACK^HLMA1 or GENERATE^HLMA) at the time of transmission. The following are the calls necessary to create a batch transmission:

D INIT^HLFNC2("batch protocol",.HL)
Initializes variables to build the batch message

D CREATE^HLTF(.HLMID,.MTIEN,.HLDT,.HLDT1)
Creates a message stub in the HL7 MESSAGE TEXT File (#772) (IEN is returned in MTIEN) and reserves a batch message id (returned in HLMID).

D INIT^HLFNC2("server protocol",.HL)
Initializes variables to build the individual message

D MSH^HLFNC2(.HLARRAY,HLMID_"-n",.HLRES,SECURITY) where n is the batch message counter creates new message header segment for the individual message to append to the batch.

Reading Incoming Messages

Routines affected:
IVMCM
IVMPREC
IVMPREC2

When receiving a transmission, HL7 Messaging will place the header in File #773, and the body of the message into File #772. In **V***IST***A** HL7 V. 1.6, executing HLNEXT (which runs code HLNEXT^HLCSUTL) will cause the entire message to be read from both Files #772 and #773. The following code uses HLNEXT to traverse the transmission and store it.

```
F SEGCNT=1:1 X HLNEXT Q:HLQUIT'>0  D
. S CNT=0
. S ^TMP($J,IVMRTN,SEGCNT,CNT)=HLNODE
. F  S CNT=$O(HLNODE(CNT)) Q:'CNT  D
. . S ^TMP($J,IVMRTN,SEGCNT,CNT)=HLNODE(CNT)
```

The message is saved into the following temporary global:

^TMP($J,IVMRTN,SEGCNT,CNT)

{Where: IVMRTN = Main routine which gathers the incoming message
SEGCNT = Incremental Segment Counter
CNT = Incremental Continuation Counter Starts at 0}

The execution of the HLNEXT variable creates the HLNODE array, which is initialized for each segment read from the incoming message. The HLNODE array consists of the main segment followed by each continuation of that segment. Each series of same segment nodes within the HL7 MESSAGE TEXT File (#772) is separated from the next main segment by an empty node (unlike the V. 1.5 File #772 where there is no continuation of segments and there is no need for empty nodes).

Protocols

Routines affected:
IVMLINS2
IVMPREC
IVMPTRN
IVMCM
IVMPTRN3
IVMPTRN4
IVMPTRN5
IVMUFNC

The Protocol Naming Convention:

HEC to VAMC HEC vamc# mtyp-etyp SERVER
VAMC to HEC VAMC vamc# mtyp-etyp SERVER
{where:
vamc# = Station # of the receiving/sending VAMC
mtyp = Message Type (ORU, ORF, QRY, ...)
etyp = Event Type (Z05, Z07, Z11, ...)}

For example,
VAMC 500 ORU-Z07 SERVER (for sending unsolicited Z07 patient demographics from Station 500 to the HEC)

Many of the **V*IST*A** HL7 V. 1.6 calls need to know the specific event driver protocol that is performing the event.

For example,
INIT^HLFNC2(HLEID,.HL)
where HLEID is the IEN of a specific protocol.

Once the full protocol name is formed (look at the Naming Convention section above) the IEN of that specific protocol can be found by using the following code:

To get the IEN of an event driver/SERVER protocol:

```
$O(^ORD(101,"B","VAMC vamc# mtyp-etyp SERVER",0))
```

To get the IEN of a subscriber/CLIENT protocol:

```
$O(^ORD(101,"B","VAMC vamc# mtyp-etyp CLIENT",0))
```

where vamc#, mtyp, and etyp are filled in with actual values

Logical Links

Links (also known as logical links) describe the complete network path to a given system. They are similar in function to VA MailMan's DOMAIN File (#4.2) and Kernel's DEVICE File (#3.5). Link entries hold the details of how to connect to the target system, such as IP address and Port. For every target system that you need to exchange HL7 messages with, a link needs to be set up so that **V*IST*A** HL7 knows how to reach the target system.

The naming convention for the Logical Links between the Sites and the Health Eligibility Center (HEC) are:
Logical Link for transmissions from VAMC to HEC: LLvisn#VISN
Logical Link for transmissions from HEC to VAMC:
At the HEC
HEC specific Logical Link: LLvamc#VAMC
At the Site
The Site can select one of the following two Logical Links to use*:
1. Site Standard Logical Link: VA<site pneumonic>
2. HEC specific Logical Link: LLvamc#VAMC
{where: visn# = VISN (Veterans' Information System Network) number of station.
vamc# = Station number of the receiving/sending VAMC station
site pneumonic = 3 digit code that defines a site Logical Link}

The specific LLvisn#VISN (ex LL2VISN) logical link will be set up at the corresponding VAMC Station and will contain the TCP/IP Address and Port for the HEC (Health Eligibility Center). The LLvamc#VAMC (ex LL516VAMC) will be set up at the HEC for each VAMC Station. The LLvamc#VAMC will contain the TCP/IP Address and Port for the VAMC Station of which vamc# is the Station number.

Examples of logical link set up for station 500:

At the HEC

LL2VISN ...MULTI-LISTENER logical link (station 500 has a VISN=2) with VAMC receiving port number.
LL500VAMC ...CLIENT (SENDER) logical link with IP Address/Port for station 500.

At VAMC Station 500

LL2VISN ...CLIENT (SENDER) logical link with IP Address/Port for the HEC.
*LL500VAMC ...MULTI-LISTENER logical link with VAMC receiving port number.
*VAALN …MULTI-LISTENER logical link with VAMC receiving port number.

Note: There may be one or more stations which share the same VISN number.

* The Site can choose to use the Site Standard Logical Link or the HEC specific Logical Link.

Site Standard Logical Link

Pros	Cons
• No new Logical Link to support/maintain • For VMS : No new UCX Services or VMS COM files to create • For CACHE: No additional jobs running on your system	• All HEC transmission traffic will be added to your current queue of HL7 traffic. • If the current speed of HL7 transmission processing is not sufficient, the addition of the HEC-specific transmissions to the same queue, will negatively impact this situation.

HEC-Specific Logical Link

Pros	Cons
• Provides a separate queue for HEC-specific transmissions to be processed. • Your current HL7 transmission processing will be minimally affected by the addition of the HEC specific transmissions.	• New Logical Link to support/maintain • For VMS: New UCX Service and VMS COM file to create • For CACHE: Another background process needed to receive transmissions • Coordination when going live will be needed to make sure the IP Address and Port are correct.

Routine List with Checksums

The following is a list of routines included in this patch. The second line of each of these routines will look like:

```
<tab>;;2.0;INCOME VERIFICATION MATCH;**[patch list]**;[date]
```

Routine Name	Before Patch	After Patch	Patch List
IVM16PF	N/A	5196521	34
IVM16PM	N/A	1027960	34
IVM16PR	N/A	10411301	34
IVM2034P	N/A	2636509	34
IVMCM	12989814	13690131	12, 17, 28, 41, 44, 53, 34
IVMCMC	7115538	7108191	17, 34
IVMCQ1	4587301	4817907	17, 23, 34
IVMLINS2	8178111	8197231	14, 34
IVMPREC	7476366	8052827	1, 9, 11, 15, 18, 24, 34
IVMPREC1	5224120	5607016	9, 17, 26, 52, 34
IVMPREC2	2550635	4135098	12, 34
IVMPREC3	8494995	8434727	3, 17, 34
IVMPREC4	2479178	2441159	34
IVMPREC5	6368053	6330034	2, 17, 34
IVMPREC6	6612553	6620465	3, 4, 12, 17, 34
IVMPREC7	14040198	14001576	1, 17, 44, 34
IVMPREC9	1069358	1073525	34
IVMPRECA	7459486	7451508	5, 6, 12, 34
IVMPRECZ	N/A	8240349	34
IVMPTRN	6323749	7289690	1, 9, 11, 12, 17, 28, 34
IVMPTRN3	1966490	1969446	1, 9, 34
IVMPTRN4	4799219	5478061	9, 11, 17, 34
IVMPTRN5	5893564	6068318	1, 9, 24, 34
IVMPTRN7	1534345	1650934	9, 11, 24, 34
IVMPTRN8	11443458	10348934	9, 11, 19, 12, 21, 17, 24, 36, 37, 47, 48, 42, 34
IVMPTRN9	8261741	8045654	9, 11, 19, 12, 21, 17, 46, 50, 53, 34
IVMUFNC	5889701	5971005	3, 11, 17, 34
IVMUFNC4	5616344	5490183	1, 9, 13, 18, 34
IVMUM1	3401989	3396870	1, 8, 34

Procedure Call Changes

ACK^IVMPREC
Create the ACK message to send back to the HEC in response to a received message.

QRY^IVMPREC
This procedure will receive QRY Messages from the HEC and call the appropriate routine to parse and respond to the query.

Installation Guide

It is recommended this patch be installed outside of normal business hours, with users off the system, to avoid any complications resulting from users on the system. Installation will take less than 30 minutes. In order to prevent missing HL7 traffic while this patch is being installed, TaskMan should be placed in a wait state, and all HEC HL7 transmission queues should be empty before continuing.

***********************SPEICAL NOTE FOR VMS ACCOUNTS ONLY*********************
Prior to installing this patch, you must ensure that the VMS ACCOUNT this patch is being loaded into has been configured with the HL7 Handler and necessary UCX service (as directed with patch HL*1.6*19). If you are unsure as to whether these are set up, contact the appropriate network person in your Information Resources Management (IRM) shop.
****

Before installing this patch, determine if the IVM BACKGROUND JOB [IVM BACKGROUND JOB] options is currently running or is scheduled to be run within one hour of this patch being installed; if scheduled, it needs to be stopped and/or rescheduled.

Installation Instructions

1 Use the **INSTALL/CHECK MESSAGE** option on the **PackMan** menu. [Note: TEXT PRINT/DISPLAY option in the PackMan menu will display the patch text only].

2 Review your mapped set. If any of the routines listed in the Routine Summary section are mapped, they should be removed from the mapped set at this time.

3 From the **Kernel Installation and Distribution System Menu [XPD MAIN]**, select the **Installation** menu.

4 Use the **Load a Distribution** option, and select Host File **IVM_20_P34.KID**.

5 From the **Installation** menu, you may elect to use the following options (when prompted for INSTALL NAME, enter **DG*5.3*363**):
   a.) **Backup a Transport Global** - Creates a backup message of any routines exported with the patch. It will NOT backup any other changes such as DDs or templates.
   b.) **Compare Transport Global to Current System** - Allows you to view all changes that will be made when the patch is installed. It compares all components of the patch (routines, DDs, templates, etc.).
   c.) **Verify Checksums in Transport Global** - Allows you to ensure the integrity of the routines that are in the transport global.
   d.) **Print Transport Global** - Allows you to view the components of the KIDS build.

6 Use the **Install Package(s)** option and select the patch **DG*5.3*363**.

7 When prompted 'Want KIDS to INHIBIT LOGONs during the install? YES//', respond YES.

8 When prompted 'Want to DISABLE Scheduled Options, Menu Options, and Protocols? YES//', respond YES. When prompted to select the option(s) you would like to place out of order, enter the following:

```
IVM BACKGROUND JOB [IVM BACKGROUND JOB]
```

9 If routines were unmapped as part of Step 2, they should be returned to the mapped set once the installation has run to completion.

10 Reschedule any jobs that were unscheduled to install this patch.

11 Return TaskMan to its normal state.

12 During the installation of this patch a MailMan message is sent to the Patch Server (S.AYCM PATCH SERVER@IVM.MED.VA.GOV) at the HEC and the installer. (A sample of this message is provided below.) After the message arrives at the Patch Server it is processed and a job is run to upgrade the HEC's definitions to send HL7 transmissions via V. 1.6 methods to this site. Until the job is run, communication will NOT be possible as the site will have been upgraded to V. 1.6 while the HEC will still be reading/processing V. 1.5 transmissions for your site.

```
Subj: Patch IVM*2*34 Installed (511)  [#84243] 23 May 02 16:22  7 lines
From: REGISTRATION PACKAGE  In 'IN' basket.   Page 1  *New*
-------------------------------------------------------------------------
PATCHID:IVM*2*34|511|3020523.162235||



     Facility Name :ALBANY
    Station Number :511
 Installed IVM*2*34 patch on:  May 23, 2002@16:22:35
```

****

If the MAILMAN message does *NOT* arrive at the HEC, call the HEC Support to perform a manual upgrade of the messaging protocols for your site. Step 15 will discuss ways of finding out if this situation exists.

****

13 Start up the outgoing link (LL<visn#>VISN). (Note that <visn#> refers to the VISN (Veterans Information Systems Network Number) of your station.)

a.) >**D ^XUP**

```
Setting up programmer environment
Terminal Type set to: C-VT100
```

b.) Select OPTION NAME: **HL MAIN MENU**

c.) Select HL7 Main Menu Option: **Filer and Link Management Options**

d.) Select Filer and Link Management Options Option: **SL** Start/Stop Links

This option is used to launch the lower level protocol (LLP) for the appropriate device. Please select the node with which you want to communicate.

e.) Select HL LOGICAL LINK NODE: **LL<visn#>VISN**
(Note that visn# refers to the VISN (Veterans' Information System Number) of your station. Example : LL2VISN)

```
This LLP has been enabled!
```

**********Additional steps for CACHE sites only!**********

**********VMS sites should continue with Step 14!**********

f.) Receiving/Listener Logical Link Setup of IP Address & Port

1. **D ^XUP**

```
Setting up programmer environment
Terminal Type set to:  C-VT100
```

2. Select OPTION NAME: **HL MAIN MENU**
3. Select HL7 Main Menu Option: **Interface Developer Options**
4. Select Interface Developer Options Option: **EL** Link Edit
5. Select HL LOGICAL LINK NODE: **LL<station#>VAMC**
6. Go to the second screen of the Logical Link definition by pressing <**ENTER**> at the LLP TYPE prompt (its value should be TCP).
7. TCP/IP ADDRESS: Enter the TCP/IP Address that your cache system will be listening for HL7 Messages on.
8. TCP/IP PORT: Enter the Port/Socket # that your cache system will be using on the previously noted IP Address to listen for HL7 messages.

g.) Start the Receiving/Listener Logical Link (LL<station#>VAMC) <station#> is the 3 digit number that corresponds to your Site.

1. Follow Steps 1 through 4 from Step f) above.
2. Select HL LOGICAL LINK NODE: **LL<station#>VAMC**. This will start a process on the Cache system that will listen on the IP Address & Port defined for the Logical Link for incoming Transmissions from the HEC.
3. Select the Receiving/Listener Logical Link to run in the Background.

14 Make sure that the following **V*IST*A** HL7 V. 1.6 jobs are running in the HL7 V. 1.6 System Monitor:
- Incoming filers
- Outgoing filers
- Link Manager

15. Check the Outgoing Messaging TCP connection to the HEC System.
PING
a.) >**D ^XUP**
```
Setting up programmer environment
Terminal Type set to: C-VT100
```
b.) Select OPTION NAME: **HL MAIN MENU**
c.) Select HL7 Main Menu Option: **Filer and Link Management Options**
d.) Select Filer and Link Management Options Option: **PI Ping** (TCP Only)
e.) Select HL LOGICAL LINK NODE: **LL<visn#>VISN**
f.) If the reply is ...
```
PING worked
```
The sending connection is good, and the HEC has received the MailMan message and enabled the V. 1.6 software.

If the reply is ...
```
-1^Error during Read
```
The connection is NOT good. The issue may be on the receiving side of the interface. Review the Troubleshooting Tips below for extra information.

If the reply is ...
```
Calling DNS
Domain Unknown

<ping message>

No response
```
The connection is NOT good. The issue may be on the sending side of the interface. Review the Troubleshooting Tips for extra information.

Troubleshooting Tips

The **V***IST***A** HL7 Site Manager & Developer Manual has extensive information on the **V***IST***A** Messaging HL7 V. 1.6 Interface Setup. If the following tips do not provide you with a solution to your problem, this manual should be the next resource to research. You can download the file from the **V***IST***A** Documentation Library at the following url: http://vista.med.va.gov/vdl/#App8 /

Problem	**Possible Resolution**
PING works from the Site to the HEC, but no transmissions are coming in to your Site's Incoming Logical Link.	CACHE Site-Specific Checks: 1. Check your TCP/IP Address and TCP/IP Port fields in the Listener/Incoming Logical Link definition to make sure that it is listening to the correct location. 2. Make sure that your Listener/Incoming Logical Link LL<vamc#>VAMC has been started.
	VMS Site-Specific Checks: 1. Make sure the UCX Service defined for the incoming HEC Transmissions is enabled. 2. Is the UCX Service defined to listen on the same IP Address & Port that the HEC is sending to. (Refer to General Check 2 below) 3. Is there a VMS COM file (ex. HLSEVEN.COM) defined in the UCX Service to begin the processing of the HL7 Transmission. 4. At the bottom of the VMS COM file mentioned in Item 3 above, there is a DSM command. Make sure the UCI and VOLUME Set are the correct ones for the environment that will be processing the HL7 Transmissions. There will also be a number that is passed into the HLCSTCP routine. This number is the IEN in HLCS(870) for your listener/incoming Logical Link, named LL<vamc#>VAMC. Make sure this number and the IEN in HLCS(870) for the Logical Link are the same.
	General Checks 1. Make sure that at least 1 Incoming Filer is running. 2. Contact the HEC Customer Support to make sure that the HEC has the correct TCP/IP Address and TCP/IP Port defined for your location.
PING returns with a -1^Error during Read	Contact the HEC Customer Support as this is most likely a problem with the receiving setup at the HEC.
PING returns with a No response	1. **V***IST***A** HL7 was able to get a connection, but failed to get a response. In this case, a listener is running on the target system, but something else is wrong: the listener is a foreign listener (e.g., the RPC Broker), or the link entry for the listener on the receiving system is not defined correctly. 2. Contact the HEC Customer Support to verify TCP/IP Address and TCP/IP Port defined in your Outgoing Logical Link, LL<visn#>VISN. 3. Contact the HEC Customer Support to research for any problems in the HEC receiving/listening setup.

Problem	Possible Resolution
No Transmissions are being sent to the HEC	1. Check the HL7 System Monitor to make sure that the LINK MANAGER is running. 2. Check the HL7 System Monitor to make sure that there is at least one outgoing/sending Filer running. 3. Check the HL7 System Monitor to make sure that the outgoing/sending Logical Link, LL<visn#>VISN is running. 4. Check the outgoing/sending Logical Link, named LL<visn#>VISN definition to make sure that the TCP/IP Address and TCP/IP Port are correct. If you do not know the correct IP Address and Port to send to the HEC, contact the HEC Customer Support.